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54. **Distribution and safety valve for bottles for dispensing whipped cream**

The present invention relates to a distribution and safety valve for bottles intended for the production and distribution of whipped cream.

In bottles for the production and distribution of whipped cream, it is necessary to place, on the lid or head of the bottle, a manoeuvrable valve for distribution of the cream and a maximum pressure, or safety, valve which opens when a pressure higher than the resistance pressure of the bottle develops inside the bottle, also taking into account the safety load of the material used.

The use of two separate valves, one distribution and one safety, leads to a high production cost and poses a space problem, as the space available in the head of the bottle is rather limited.

Attempts have already been made to use a distribution valve with a safety valve incorporated, but the solutions proposed proved to be complex, with a high production cost, presenting difficulties in obtaining precise manufacture and offering only very insecure tightness, with consequent losses of gas or cream.

The purpose of the present invention is to design a distribution and safety valve for bottles of whipped cream which makes it possible to remedy these drawbacks and which is of very simple design, easy to manufacture and therefore offering a guarantee of maximum tightness, with a very low production cost.

The valve according to the invention comprises a nozzle which, rising from the lid of the bottle, puts the inside of the bottle in communication with the outside, an essentially cylindrical seal mounted so that it slides and which, placed above the nozzle, is fitted with a tightness device which serves to close the end of this nozzle, a lever articulated between two arms extending upwards from the lid of the bottle and surrounding the nozzle and the seal, the said lever having an arm which moves the said seal into its open and closed positions on one side and on the other side another arm

manoeuvrable by hand and subjected to the action of a return spring regulated in such a way as to keep this seal in the closed position when the internal pressure in the bottle is normal and to allow opening of the seal when this pressure exceeds a predetermined upper limit value.

The invention will now be described in more detail with reference to the appended drawings showing as an example an embodiment of the valve according to the invention.

On these drawings :

Fig. 1 is a view in axial section of the valve according to the invention in the closed position;

Fig. 2 is a cross-section along the line A-A of figure 1, and

Fig. 3 is a view corresponding to figure 1 showing the valve in its open position.

On figures 1 and 2, one can see the head or lid 1 of a bottle for distributing whipped cream, this lid being screwed tightly in a known manner to the neck of the bottle, which is generally made of a metal such as stainless steel, aluminium or similar.

In these figures one can also see a valve 2 for introduction of a gas capable of lifting the cream and propelling it, for example nitrogen monoxide, this valve 2 being protected when at rest by a screw cap 3.

From the lid 1 a nozzle 4 extends vertically with a longitudinal passage 5 which can be put in communication with the inside of the bottle.

The nozzle 4 is located between two arms 6 and 7, flat and parallel, fitted with reinforcing ribs 8 and which protrude for a certain length beyond the tapered end of the nozzle 4.

The nozzle 4 is covered by a sealing organ 9 mounted so that it slides on this nozzle, the sliding being tight, for example with interposition of an annular fitting 10 located in an annular groove of the nozzle 4. The seal 9 has inside two shoulders 11 and 12 which form the seat for a discoid fitting 13 and are able to keep this fitting pressed against the end of the nozzle 4 to seal the orifice 5 hermetically. The fitting 13 has a smaller diameter than the internal diameter of the seal, while the two shoulders 11 and 12 are separated from each other in order to allow the fitting lateral passages.

On the outer part the seal 9 has two pairs of projections 14,15 on one side and 16, 17 on the other side, in diametrically opposite directions, the function of which will be explained below.

The seal 9 is extended at the top by a cylindrical part 9' to which a distribution spout 18 of a known type is connected.

Mounted between the two arms 6 and 7, apart from the seal 9, is a pivot 19 on which a control lever 20 is articulated. Towards the seal, this lever has a forked arm, the two branches of which 21 and 22 engage respectively between the projections 14, 15 on one side of the seal and 16, 17 on the other side, so that these branches can raise or lower the seal in relation to the nozzle 4, by acting respectively on the upper projections 14 and 16 or on the lower projections 15 and 17.

The other arm 23 of the lever 20, inclined outwards to allow its manual activation, is subjected to the action of a return spring 24 which tends to move the lever into a position corresponding to the closing of the seal.

The spring 24 is regulated in such a way as to keep the seal 9 in its closed position when the pressure inside the bottle is normal and to yield as soon as this pressure exceeds a predetermined pressure under the thrust exercised through the orifice 5 of the nozzle 4.

The resistance of the spring can also be overcome by exerting a certain pressure with the hand on the arm 23 of the lever 20, such that this valve unit serves as both distribution valve and safety valve.

In the open position of the valve (figure 3), achieved either by manual action on the lever 20 or by excess pressure inside the bottle, the seal 9 and the fitting 13 are raised so that the cream can exit through the nozzle, cross the lateral passages of the fitting 13 and then escape through the spout 18, following the path indicated in figure 3.

As can be seen, the valve unit essentially comprises the nozzle 4, the seal 9, the lever 20 and the spring 24, the seal being of a size which can be manufactured easily, with precision and cheaply. In addition, the valve can be fitted very quickly.

Moreover, on the opposite side to the lever 20, the seal has radial and vertical ribs 25 designed to co-operate with the two opposite arms 6 and 7 in order to prevent any rotation of the valve.

Naturally, the invention is not limited to the embodiment described and presented here, but numerous modifications of details can be made without going beyond the scope of the invention.

CLAIMS

1. Distribution and safety valve for bottles for distribution of whipped cream, characterised in that it comprises a nozzle which, rising from the lid of the bottle, puts the inside of the bottle in communication with the outside, an essentially cylindrical seal mounted so that it slides and which, placed above the nozzle, is fitted with a tightness device which serves to close the end of this nozzle, a lever articulated between two arms extending upwards from the lid of the bottle and surrounding the nozzle and the seal, the said lever having an arm which moves the said seal into its open and closed positions on one side and on the other side another arm manoeuvrable by hand and subjected to the action of a return spring regulated in such a way as to keep this seal in the closed position when the internal pressure in the bottle is normal and to allow opening of the seal when this pressure exceeds a predetermined upper limit value.

2. Valve according to claim 1, characterised in that the arm of the lever which acts on the seal is in the form of a fork, the branches of which surround the seal and act on two pairs of projections provided on this seal, in opposite positions and at a certain distance from each other, the upper projections serving to open the seal and the lower projections to close it.